



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,949	09/04/2003	Stephen B. Brown	7162-70	9001
39207	7590	12/15/2004	EXAMINER	
SACCO & ASSOCIATES, PA P.O. BOX 30999 PALM BEACH GARDENS, FL 33420-0999				JONES, STEPHEN E
		ART UNIT		PAPER NUMBER
		2817		

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/656,949	BROWN ET AL.
	Examiner	Art Unit
	Stephen E. Jones	2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 13 October 2004.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,3-8,11-13,15-20 and 23 is/are rejected.  
 7) Claim(s) 2,9,10,14,21 and 22 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 10/13/04.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 10/13/04 has been entered.

The indicated allowability of claims 1, 3-8, 11-13, 15-20 and 23 is withdrawn in view of the newly discovered reference(s) to Moller, Smith and Benavides. Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12, 13, 15, 16, 18-20, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Moller (cited by applicant).

Moller teaches an integrated circuit including: a transmission line which is tuned (i.e. related to changing frequency) for impedance matching and delay with a fluid dielectric channel, the fluid having a chosen dielectric constant (i.e. permeability), that is in a serpentine pattern (see Fig. 4 and Col. 1, lines 14-15 and 25-30) (Claim 19); the fluid can be selectively changed/added, replaced or mixed (i.e. an industrial solvent since it is a mixed fluid) (e.g. see Col. 3, lines 35-40) (Claims 12-13, 20, and 23); the device is on a ceramic substrate (e.g. see Col. 2, lines 45-50) (Claims 15-16); and inherently the fluid has a dielectric that is different from the substrate so as to provide the matching (Claim 18).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3-5, 7-8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moller (cited by applicant) in view of Smith.

Moller teaches an integrated circuit as described above (including the subject matter of Claims 3, 5, 7, and 8). Also, note that the functionality recited in claims 4 and 11 are inherent functionality of the Moller device, especially since the Moller device structure is the same as the presently claimed structure and also is providing impedance matching in the same manner). However, Moller does not explicitly teach a fluid control system (Claims 1 and 11).

Smith teaches a fluidic phase shifter including that fluid computers are well-known for controlling the operation of fluidic electrical communications devices.

It would have been considered obvious to one of ordinary skill in the art to have included a fluidic computer control such as taught by Smith to have controlled the fluid processing based on sensors (including impedance, time delay and permittivity sensors since Moller is concerned with these properties), because it would have provided the advantageous benefit of a means for monitoring the circuit characteristics, thereby suggesting the obviousness of such a modification.

5. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moller (cited by applicant) in view of Benavides.

Moller teaches an integrated circuit as described above. However, Moller does not explicitly teach that the ceramic can be LTCC.

Benavides teaches a chip packaging of microfluidic devices including that the base substrate layer can be made of, e.g., alumina or a low temperature co-fired ceramic.

It would have been considered obvious to one of ordinary skill in the art to have substituted a low-temperature co-fired ceramic material such as taught by Benavides in place of the insulating layer of Moller, especially since Moller teaches that the layer can be alumina (see Col. 2, lines 41-49) and Benavides teaches that low-temperature co-fired ceramics and alumina are art-recognized equivalent/alternatives for a base substrate/layer means for electrical circuit packages.

6. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moller and Smith as applied to claims 1 and 3 above, and further in view of Benavides.

Moller and Smith teach an integrated circuit as described above. However, they do not explicitly teach that the ceramic can be LTCC.

Benavides teaches a chip packaging of microfluidic devices including that the base substrate layer can be made of, e.g., alumina or a low temperature co-fired ceramic.

It would have been considered obvious to one of ordinary skill in the art to have substituted a low-temperature co-fired ceramic material such as taught by Benavides in place of the insulating layer of the Moller/Smith combination, especially since Moller teaches that the layer can be alumina (see Col. 2, lines 41-49) and Benavides teaches

that low-temperature co-fired ceramics and alumina are art-recognized equivalent/alternatives for a base substrate/layer means for electrical circuit packages.

***Allowable Subject Matter***

7. Claims 2, 9-10, 14, and 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 8 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Stephen Jones  
Primary Examiner  
Art Unit 2817

SEJ